

REMARKS

Applicant cancels claims 26, 36, 41, and 57, amends claims 23, 24, 27, 28, 30-35, 37-40, and 42-45, and adds claim 61 such that claims 23-25, 27-35, 37-40, 42-51, 53-56, and 58-61 are pending in this application. Applicant respectfully requests allowance of all the pending claims.

Claim Rejections – 35 U.S.C. §§102 and 103

The Examiner rejects claims 23, 24, 26, 27, 33, 36-39, 45, 49, 53, 55, 56, and 58-60 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,104,037 (“Karg”). The Examiner rejects claims 28, 29, 32, 40, 48, and 57 under 35 U.S.C. §103(a) as being unpatentable over Karg in view of U.S. Patent No. 5,557,941 (“Hanson”) and claims 41-44 as being unpatentable over Karg in view of Hanson and further in view of U.S. Patent No. 5,515,693 (“O’Brien”). The Examiner rejects claims 25, 30, 31, 34, 35, 46, 47, 50, 51, 54 under 35 U.S.C. §103(a) as being unpatentable over Karg in view of various other references.

Dependent claim 44 has been rewritten in independent form as newly added independent claim 61, dependent claim 41 has been rewritten in independent form as amended independent claim 23 (less intervening claims 39 and 40), and dependent claim 57 has been rewritten in independent form as amended independent claim 45. Since Applicant is merely adding limitations of dependent claims into the independent claims, Applicant respectfully requests the Examiner to enter the amendments to the claims and to consider the following arguments.

INDEPENDENT CLAIM 45

Independent claim 45 recites a transport temperature control unit having cooling and heating cycles for cooling and heating a conditioned space within a transport to maintain the conditioned space at a temperature setpoint. The unit includes a programmable temperature range operable to control the operation of the unit in a conditioned space by being selectively operable to utilize one of the first pre-programmed control mode and the second control mode. Each of the control modes being one of a cycle mode, continuous mode and a cycle/continuous select mode.

As described in the Application, the operations of the programmable temperature ranges are programmed or selected by the end user to include a unit control mode that operates the temperature control unit within the conditioned space. The unit control mode may be one of a

cycle mode, a continuous mode or a cycle/continuous select mode. The cycle mode cycles the unit between on and off or null based on the temperature within each conditioned space.

The continuous mode runs the unit continuously. The unit will not shut off when the conditioned space has an acceptable temperature. If the transport vehicle only has a single conditioned space and the temperature is satisfied within that conditioned space, the unit will cycle between heating and cooling the conditioned space when the unit is in the continuous mode.

The cycle/continuous select mode is different from the cycle mode and the continuous mode, in that, the cycle/continuous select mode transfers the option of selecting either cycle mode or continuous mode from the end user to a secondary user. The secondary user may be, but is not necessarily limited to, a transport vehicle operator, loading dock personnel, and a product handler (people who load and unload cargo into the transport vehicle). The cycle mode and the continuous mode are programmed or selected by the end user when he/she is programming or selecting the operations of the programmable temperature range. For cycle /continuous select mode, the end user programs or selects cycle/continuous select mode while programming or selecting the operations of the programmable temperature range. The secondary user then selects between cycle mode and continuous mode at a later time, after all the operations for the programmable temperature range have been selected, typically when the conditioned space is being prepared to transport cargo. Conversely, when the end user selects cycle mode or continuous mode, the secondary user is restricted from changing or overriding the unit control mode from the control mode pre-programmed by the end user.

Karg discloses a control system for remotely controlling climate control devices of a plurality of mass transit vehicles. The control system includes a central command computer that stores pre-programmed temperature/humidity setpoints and that communicates the pre-programmed values with a plurality of microprocessors, which are each located in one of the plurality of mass transit vehicles to control that specific vehicle's climate control device. The control system includes a single pre-programmed control mode, or control process, that includes: (i) storing desired temperature/humidity values; (ii) sensing the temperature/humidity of the vehicle; (iii) comparing the stored values with the sensed values; (iv) operating the climate control device to reduce the difference between the stored and sensed values, the intensity of the operation dependent on the magnitude of the difference between values. Operators of the

vehicles have the option of overriding the stored temperature/humidity values and entering new desired values or the option of reprogramming the remote climate control program (col. 6, lines 59-65).

Karg does not teach or suggest programming one of a cycle mode, a continuous mode, and a cycle/continuous select mode such that the end user controls whether the secondary user is allowed or restricted from selecting the control mode. Rather Karg discloses that the remote vehicle operators have the ability to reprogram the remote climate control program. Karg does not teach or suggest that the central command center has the ability to select cycle/continuous select mode that allows the remote operator to adjust between a cycle and continuous control mode and to select between cycle and continuous mode that operates to restrict the remote operator from adjusting the unit control mode. Therefore, Karg does not teach or suggest the subject matter defined by independent claim 45.

Hanson discloses a refrigeration unit including an operator switch (68) having a selector element (70) that is movable between first and second positions (72, 74) corresponding to continuous and cycle operating modes (col. 4, line 50-col. 5, line 17).

Hanson does not cure the deficiencies of Karg. Hanson does not teach or suggest programming one of a cycle mode, a continuous mode, and a cycle/continuous select mode such that the end user controls whether the secondary user is allowed or restricted from selecting the control mode. Rather Hanson discloses that the secondary user has the ability to adjust the control mode between cycle and continuous modes. Hanson does not teach or suggest the ability to select cycle/continuous select mode to allow the remote operator to adjust between a cycle and continuous control mode and to select between cycle and continuous mode to operate to restrict the remote operator from adjusting the unit control mode. Therefore, Hanson does not teach or suggest the subject matter defined by independent claim 45.

Karg and Hanson, alone or in combination, do not teach or suggest the subject matter defined by independent claim 45. Accordingly, independent claim 45 is allowable. Claims 46-51, 53-56, and 58-61 depend from allowable claim 45 and are allowable for the same and other reasons.

INDEPENDENT CLAIM 23

Independent claim 23 recites a method of controlling a transport temperature control unit to maintain a conditioned space within a transport at a temperature setpoint. The method includes, among other things, selecting a first priority for the first programmable temperature range of a first conditioned space and a second priority for the second programmable temperature range of a second conditioned space by the end user.

As disclosed in the Application, the end user selects the priority of the temperature range. The priority of the temperature range prioritizes all of temperature ranges from most important to the least important, given the priority value equal to the number of temperature ranges programmed into the temperature control unit by the end user. The end user may select one unit control mode for each temperature range to control operation of the temperature control unit within each conditioned space. The temperature control unit can only operate in a single mode, continuous or cycle, therefore, the temperature range with the highest priority will determine whether the temperature control unit operates in cycle mode or continuous mode. The sensitivity of the cargo to changes in temperature and the importance of the cargo being transported within the conditioned space typically determine priority of the programmable temperature ranges.

For example, first, second and third conditioned spaces will operate in cycle mode or continuous mode depending on the unit control mode selected for the temperature range with the highest priority. Each of the stored temperature ranges with lower priority than the temperature range with the highest priority maintain all of their operations (i.e. high speed pull down, SP1, FST, SP2, fan operations, door switch options, etc.) selected in the main routine of the program, except they operate in the unit control mode (cycle or continuous) of the temperature range with the highest priority. All temperature ranges are operated in the same unit control mode because the temperature control unit can only operate in one mode, continuous mode or cycle mode. In other words, if the temperature range with the highest priority operates in the cycle mode, the other two temperature ranges corresponding to the other two conditioned spaces will operate in cycle mode even if they are set for continuous mode or continuous/cycle select mode.

Karg does not teach or suggest prioritizing programmable temperature ranges. Rather Karg discloses using non-prioritized pre-programmed temperature ranges for individual mass transit vehicles. Although these temperature ranges can vary between different mass transit vehicles and can be overridden by the remote operators of the mass transit vehicles, no priority is

ever assigned to the programmed temperature ranges. Therefore, Karg does not teach or suggest the subject matter defined by independent claim 23.

Hanson does not cure the deficiencies of Karg. Hanson does not does not teach or suggest prioritizing programmable temperature ranges. Rather Hanson discloses a single programmable set point temperature (SP) that is selected by a set point temperature selector (60). No priority is ever assigned to the programmed set point temperatures. Therefore, Hanson does not teach or suggest the subject matter defined by independent claim 23.

O'Brien discloses a control system for a refrigeration system and a controlled atmosphere system to regulate the temperature and the atmosphere, respectively, within a container. The purpose of the controlled atmosphere system is to control the amount of oxygen and carbon-dioxide inside the container to change the rate of ripening within the container. The control system operates the controlled atmospheric system when it determines that acceptable conditions exist (e.g., when the temperature within the container is between -5 degrees Celsius and 25 degrees Celsius). Likewise, the control system stops the controlled atmospheric system when it determines that the conditions within the container are not met (e.g., when the temperature within the container is outside of the specified operating range).

O'Brien does not cure the deficiencies of Karg and Hanson. Specifically, O'Brien does not teach or suggest prioritizing programmable temperature ranges. Rather O'Brien discloses programming a refrigeration system with a single, pre-programmed temperature range (i.e., setpoint and tolerance range) for the single compartment of the container. O'Brien also discloses programming the controlled-atmospheric system with a specified temperature operating range for the same compartment. No priority is ever assigned to the programmed temperature ranges for different compartments. Therefore, O'Brien does not teach or suggest the subject matter defined by independent claim 23.

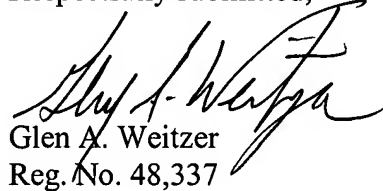
Karg, Hanson, and O'Brien, alone or in combination, do not teach or suggest the subject matter defined by independent claim 23. Accordingly, independent claim 23 is allowable. Claims 24, 25, 27-35, 37-40, and 42-44 depend from allowable claim 23 and are allowable for the same and other reasons.

INDEPENDENT CLAIM 61

Independent claim 61 recites a method of controlling a transport temperature control unit. The method includes, among other things, programming one of a cycle mode, a continuous mode, and a cycle/continuous select mode, and prioritizing programmable temperature ranges. The arguments presented above with respect to independent claims 23 and 45 apply with equal weight to independent claim 61. Therefore, Karg, Hanson, and O'Brien, alone or in combination, do not teach or suggest the subject matter defined by independent claim 61. Accordingly, independent claim 61 is allowable.

The Examiner is invited to contact the undersigned attorney should the Examiner determine that such action would facilitate the prosecution and allowance of the present application.

Respectfully submitted,



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